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ProPat, L.L.C.

Attention: Gregory N. Clements  
2912 Crosby Road  
Charlotte, NC 28211

EXAMINER

UHLIR, NIKOLAS J

ART UNIT

PAPER NUMBER

1773

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13

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/757,721

Applicant(s)

MURSCHALL ET AL.

Examiner

Nikolas J. Uhler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

1. This office action is in response to the request for continued examination filed 10/16/02. Applicants are reminded that in RCE applications all previously restriction requirements are maintained. Thus, claims 1-17 are pending.
2. Applicant should note that the rejection tendered by the office on 5/20/02 is replaced by the rejection detailed below, as the examiner has found new pertinent prior art.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, claim 1 requires that the transparent polyester film "does not embrittle" when exposed to temperatures of 100<sup>0</sup> C for 100 hours. It is unclear to the examiner what exactly is encompassed by the phrase "does not embrittle," as no clear definition of this phrase is provided by the applicant in either the specification or the claims. Webster's Dictionary 10th edition 1998 defines "embrittle" as "to make brittle" and subsequently defines "brittle" as "easily broken, cracked, or snapped." Thus, the question raised by the term brittle is what constitutes an article as being "easily broken, cracked or snapped," as these are terms of degree,

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which are subject to different interpretations by different people. How has the applicant measured "embrittlement?" Clarification is required.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murschall et al. (DE19630599) in view of Oishi et al. (5936048) and Rogers et al. (US5804626).

7. For the purpose of this examination, the examiner has relied upon a preliminary oral translation of the Murschall et al. reference. A complete written translation of the reference has been requested and will be provided to the applicant when it is received.

8. The limitation "where said at least one flame retardant, as dispersed component of a masterbatch, is fed directly by an extruder during the production of the film, wherein said masterbatch had been previously dried by gradual heating at subatomic pressure, with stirring" in claim 1, is a product-by-process limitation and is does not appear to be further limiting in so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113.

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9. Regarding the limitations of claim 1, wherein the applicant requires a transparent polyester film comprising at least one flame retardant which is soluble in polyester and a polyester, wherein said transparent polyester film does not embrittle when exposed to temperatures of 100<sup>0</sup> C for 100 hours.

10. With respect to these limitations, Murschall et al. teaches a transparent polyethylene terephthalate (PET) (a known polyester) film that contains at least one antioxidant. Suitable primary antioxidants include sterically hindered phenols, and aromatic amines, and suitable secondary antioxidants include phosphites, phosphonites, thioethers, carbodiimide, and zinc-dibutyle-dithiocarbamate (page 3, table). In preferred embodiments, the transparent PET film contains a phosphite and/or a phosphonit and/or carbodiimide as the antioxidant. The amount of antioxidant contained in the film is between 0.01-6% by weight (page 3, lines 28-33).

11. Murschall et al. does not teach a transparent polyester film that comprises a flame retardant, wherein the transparent polyester film does not embrittle when exposed to temperatures of 100<sup>0</sup> C for 100 hours.

12. However, Oishi et al. teaches a method for preparing a modified polymer resin (title). These polymer resins include polyester such as polyethylene terephthalate (Column 17, lines 43-45). Oishi also teaches that in addition to a modified resin additive, an additive such as dimethyl methylphosphonate (DMMP) may be added to a resin to provide that resin with flame retardant properties (column 21 lines 4-11). Typically this flame retardant is added in an amount of 5-40% by weight (Column 23 lines 47-48).

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13. Therefore it would have been obvious to one with ordinary skill in the art to add a 5-40% of a flame retardant such as DMMP as taught by Oishi et al. to the polyethylene terephthalate film taught by Murschall et al.

14. One would have been motivated to make this modification due to the increased flame resistance of the PET film one would expect to gain as a result.

15. It should be noted that DMMP is listed by the applicant in the instant specification as a suitable flame retardant that is soluble in polyesters. Thus, the examiner takes the position that the limitations regarding the flame retardant in claim 1 (i.e. solubility in polyester) are met when DMMP is added to the PET film of Murschall et al.

16. However, The combination of Murschall et al. with Oishi et al. still does not teach a transparent polyester film containing a soluble flame retardant, wherein the polyester film does not embrittle after exposure to temperatures of 100<sup>0</sup> C for 100 hours.

17. However, Rogers et al. teaches a polyester composition that comprises 95-99.90% by weight of a polyester, and 0.1-5.0% by weight of one or more polymeric carbodiimides (column 2, lines 34-50). Rogers et al. teaches that the carbodiimide acts as a hydrolysis stabilizer, which prevents the catalytic breakdown of polyesters at high temperature (column 7, lines 43-49). In a specific embodiment, Rogers et al. manufactures a PET film that contains 2% by weight of a carbodiimide known as Staboxal M (2, 2', 6,6'-tetraisopropyldiphenyl carbodiimide). This PET film, when exposed to temperatures of 121<sup>0</sup> C for 9 days maintained at least 50% of its initial tensile strength. The examiner interprets this retention of tensile strength as an indicator

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that the PET film of Rogers et al. has not "embrittled" after 9 days at a temperature over 100° C.

18. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to utilize 0.1-5% by weight of Carbodiimide as the secondary antioxidant utilized in Murschall et al. as modified by Oishi et al.

19. One would have been motivated to specifically select carbodiimide from the list of suitable antioxidants listed by Murschall et al. due to the teaching in Rogers et al. that carbodiimide is also a hydrolysis stabilizer which prevents the degradation of polyester films (such as PET) at high temperature.

20. The examiner takes the position that the applicants requirement in claim 1 of a polyester which does not embrittle after 100 hours at 100° C is met by the combination of Murschall et al. with Oishi et al. and Rogers et al. This is due to the fact that Rogers et al. specifically teaches that when carbodiimide is utilized in a PET film, the film retains at least 50% of its mechanical strength after 9 days (216 hours) at 121° C.

21. Regarding the limitations of claim 2, wherein the applicant requires the polyester film to comprise a hydrolysis stabilizer. This limitation is met as set forth above for claim 1.

22. The limitations of claim 3 are product-by-process limitations and is does not appear to be further limiting in so far as the structure of the product is concerned.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-

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process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113.

23. Regarding the limitations of claim 4, wherein the applicant requires the flame retardant to be one or more organic phosphorous compounds. This limitation is met as set forth above for claim 1.

24. Regarding the limitations of claim 5, wherein the applicant requires the hydrolysis stabilizer to be selected from phenolic hydrolysis stabilizers, alkali metal/alkali earth metal carbonates/stearates. As noted above for claim 1, Murschall et al. teaches that the PET film can contain a sterically hindered phenol as a primary antioxidant. Further, Murschall et al. teaches that these antioxidants exhibit both antioxidant and hydrolysis stabilizing qualities which prevent the degradation of the polymer (page 3, lines 5-10 and table).

25. Therefore it would have been obvious to one with ordinary skill in the art to utilize a sterically hindered phenol as the primary antioxidant in Murschall et al.

26. Substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213 USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

27. Regarding the limitations of claim 6, wherein the applicant requires the film to comprise 0.5-30.0% by weight of a flame retardant. This limitation is met as set forth above for claim 1.



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28. Regarding the limitations of claim 7, wherein the applicant requires the film to comprise 0.1-1.0% by weight of a hydrolysis stabilizer. This limitation is met as set forth above for claim 1, as Rogers et al. clearly teaches that 0.1-5% of carbodiimide should be added to PET. As 0.1 specifically falls within the range specified by the applicant in claim 7, this limitation is met.

29. Regarding the limitations of claim 8, wherein the applicant requires the polyester film to have two layers comprising a base and at least one outer layer. Murschall et al. teaches a specific embodiment where 3-layer polyester having an A-B-A layer structure is formed. The A layers are formed of the antioxidant containing polyester (page 7, example 1). Thus, the limitations of claim 8 are met.

30. Regarding the limitations of claim 9, wherein the applicant requires the flame retardant to be present in the outer layer. It would have been obvious to one of ordinary skill in the art to add the flame retardant taught by Oishi et al. to any of the layers in the three-layer structure Taught by Murschall et al.

31. One would have been motivated to make this modification due to the fact that Oishi teaches that the flame resistance of a polyester such as PET can be increased through the incorporation of 5-40% by weight of a flame retardant such as DMMP. In light of the fact that all of the layers in Murschall et al. are made of PET and are formed at high temperature, there is motivation to add the flame retardant of Oishi et al. to any of the layers specified by Murschall et al.

32. Regarding the limitations of claim 10, wherein the applicant requires 0.5-30% by weight of flame retardant to be present in the outer layer. This limitation is met as set

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forth above for claim 8, as Oishi et al. clearly teaches that 5-40% of DMMP is suitable added to PET to increase flame resistance. As 5% is completely encompassed within the range specified by the applicant in claim 9, this limitation is met.

33. Regarding the limitations of claims 11 and 12, wherein the applicant requires 0.1-1.0% of hydrolysis stabilizer to be present in the out layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize 0.1-5% of carbodiimide as taught by Rogers et al. in the outer layer of the multilayer PET film taught by Murschall et al. as modified by Rogers et al.

34. One would have been motivated to specifically select carbodiimide as the hydrolysis stabilizer as Rogers et al. clearly shows that adding 0.1-5% of carbodiimide to PET improves the durability of the films into which it is incorporated. As 0.1% is encompassed by the range required by claim 12, this limitation is met.

35. Regarding the limitations of claim 13, wherein the applicant requires the film to comprise recycled material. Murschall et al. teaches that the film may contain recycled material (page 5, lines 23-25). Thus, this limitation is met.

36. Regarding the limitations of claims 14-17, wherein the applicant requires the polyester film of claim 1 to exhibit the required optical properties. As claim 1 only requires a 1 layer film, applicant is directed to examples 3 or 4 of Murschall et al. which clearly show that the film meets the required optical properties, wherein the optical properties are measured via the same methods as utilized in the instant application. The yellowness requirement can be found on page 7, line 1. Regarding the embrittlement requirements of claim 1, this limitation is met as set forth above.

***Response to Arguments***

37. Applicant's arguments filed 10/16/02 have been fully considered but they are not persuasive. In the instant case the applicant has made many arguments directed towards unexpected results that applicant asserts are a result of the manufacturing process utilized to form the claimed polyester film. While the examiner acknowledges the possibility that the process utilized by the applicants may impart some beneficial effect to the end film, the examiner does not find this argument persuasive in light of the teaching of Rogers et al. which illustrates the effects of adding carbodiimide as a hydrolysis stabilizer to PET, those effects being that the PET film can maintain its structural strength for up to 9 days at temperatures over 100<sup>0</sup> C.

38. Further, applicant's examples in the specification do not appear to provide support for the argument that the process of manufacture in results in unexpectedly high heat stability. Applicants examples provided on pages 13-18 of the instant specification illustrate three embodiments of the presently claimed invention, with example 1 detailing a single layer, and examples 2 and 3 detailing a three-layer structure. Example 1-3 are all made via masterbatch technology and contain additives such as a hydrolysis stabilizers and flame-retardants. The only comparative example provided by the applicant details a product that is made by the same masterbatch process as examples 1-3, but does not utilize a flame retardant or hydrolysis stabilizer. This comparative example does not pass DIN4102 parts 1 or 2 or UL94 (fire protection and vertical burning tests). The applicants never provide an example of a film comprising the same additives but made from a different manufacturing process. As a result, it does not

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appear that the process is entirely responsible for the enhanced heat stability of the end product. Rather, it seems clear from the examples that it is the additives added to the film that provide the article with enhanced heat resistance properties. Thus, the examiner has found the applicants argument of unexpected results unpersuasive.

39. Applicant's arguments regarding the amount of flame retardant are unpersuasive.

Applicants in their response argue that the applicant's invention can utilize a concentration of flame retardant outside the range specified by Oishi et al. and still possess a suitable level of heat resistance and flame retardancy. For example, applicant's invention can utilize 4% flame retardant. While the examiner certainly recognizes that applicants claimed invention can utilize less flame retardant than that suggested by Oishi et al. Applicants are respectfully directed to the claims, wherein applicants specify that 0.5-30% by weight of a flame retardant is required. Oishi et al., which suggests using 5-40% by weight meets all of the **claimed limitations**, as 5% by weight is **completely contained** within the applicants claimed range. Applicant's argument is directed towards matter which is outside the scope of the claims.

Accordingly, it is found unpersuasive.

40. Applicants arguments related to the optical properties of the products disclosed by the prior art are rendered moot in light of the new art (Murschall et al.) applied by the examiner.

### **Conclusion**

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.



Nju

December 23, 2002



Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700